

Product Profile

Dedicated Machine Safety Connection Systems Simplify Installation and Reduce Cost

Complete Quick-Disconnect Solutions for Safety Components

The Allen-Bradley Safety Connection Systems are complete wiring solutions dedicated to machine safety. These quick connector-based systems consist of safety wired T-Ports and distribution boxes as well as patchcords and shorting plugs. Specifically intended for use with dry-contact safety switches, Safety Connection Systems provide flexible and reliable connections between safety interlock switches, E-stops, cable pull switches and safety relays. And while this system is ideal for use with these components, it is not suitable for use with light curtains, safety mats or pressure sensitive safety edges.

Allen-Bradley Safety Connection Systems are designed to:

- Reduce installation cost
- Ease system expansion
- Simplify troubleshooting
- Promote system modularity
- Provide for Safety PLC input expansion
- Support systems up to Category 3 (per EN954-1)

Speed and Flexibility

While the Allen-Bradley Safety Connection System is based on quick disconnect technology, the associated safety components are not limited to those with built-in connectors. There are a variety of alternate methods that can be employed to interface safety switches to the system, from terminal connections with cable glands to field-installable receptacles. As a result, the user may capitalize on the speed and simplicity of quick disconnect technology while being afforded the flexibility of using other connection methods. Currently, Rockwell Automation offers compatible safety components with factory-installed connectors in the most popular product families, including:

- Key Interlock Switches
- Hinge Switches
- IEC-Style Limit Switches



Two System Options

Safety Connection System layouts are available with or without enunciation capabilities, allowing the user the option of direct feedback for the status of individual switches in the system. Enunciation systems utilize an auxiliary contact as individual switch input to tower lights, audible alarms, PLC input cards, and other output devices.

Systems without Enunciation

As illustrated in Figure 1, wiring systems for applications not requiring enunciation use a combination of patchcords, shorting plugs, safety wired distribution boxes and T-ports for series wiring of safety circuits. Distribution boxes for such an application are dual channel models with 2 NC or 1NC + 1NO contact configurations. Note that shorting plugs must be used on all unused distribution box ports for the system to operate.

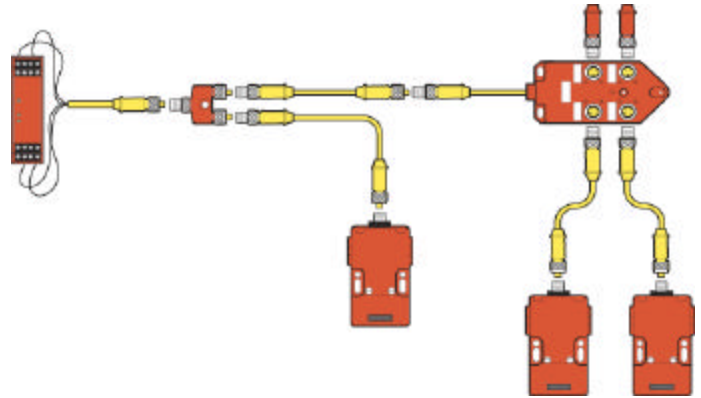


Figure 1: Safety Connection System without Enunciation

Systems with Enunciation

As shown in Figure 2, system layouts with enunciation require patchcords, shorting plugs and distribution boxes, which allow for series wiring of the safety circuits while providing a separate circuit for enunciation. Distribution boxes are offered for these applications in two contact configurations: dual channel with 2NC or single channel with 1NC. Each type also provides a NO auxiliary contact that is interfaced with the enunciation device to provide visual or audible alarm indication. In addition, LEDs on the distribution boxes assist in the troubleshooting of this system. Note that shorting plugs must be used on all unused distribution box ports for the system to operate.

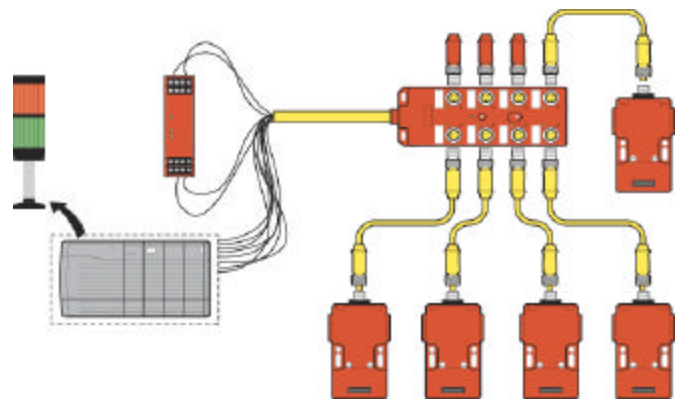


Figure 2: Safety Connection System with Enunciation

Installation Considerations for Safety Connection Systems

Some important notes regarding Safety Connection Systems:

- To help ensure that only authorized personnel can access the connections, safety distribution boxes should be mounted in the 'guarded' area as defined in the risk assessment for the application.
- The safety connection system is designed to simplify the installation of safety devices—it does not control the safety circuit.
- Since the safety circuits are wired in series, shorting plugs must be installed in all unused distribution box ports in order for the system to operate.

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